Safety Precautions

(Carefully follow the precautions listed below because they are essential to guarantee the safety of the equipment.)

WARNING

- Always disconnect the air conditioner from the power supply before servicing it or accessing its internal components.
- Verify that installation and testing operations are performed by qualified personnel.
- Verify that the air conditioner is not installed in an easily accessible area.

General information

◆ Carefully read the content of this manual before installing the air conditioner and store the manual in a safe place in order to be able to use it as reference after installation.

◆ For maximum safety, installers should always carefully read the following warnings.

◆ Store the operation and installation manual in a safe location and remember to hand it over to the new owner if the air conditioner is sold or transferred.

◆ This manual explains how to install an indoor unit with a split system with two SAMSUNG units. The use of other types of units with different control systems may damage the units and invalidate the warranty. The manufacturer shall not be responsible for damages arising from the use of non compliant units.

◆ The manufacturer shall not be responsible for damage originating from unauthorized changes or the improper connection of electric and requirements set forth in the "Operating limits" table, included in the manual, shall immediately invalidate the warranty.

◆ The air conditioner should be used only for the applications for which it has been designed: the indoor unit is not suitable to be installed in areas used for laundry.

◆ Do not use the units if damaged. If problems occur, switch the unit off and disconnect it from the power supply.

◆ In order to prevent electric shocks, fires or injuries, always stop the unit, disable the protection switch and contact SAMSUNG's technical support if the unit produces smoke, if the power cable is hot or damaged or if the unit is very noisy.

◆ Always remember to inspect the unit, electric connections, refrigerant tubes and protections regularly. These operations should be performed by qualified personnel only.

◆ The unit contains moving parts, which should always be kept out of the reach of children.

◆ Do not attempt to repair, move, alter or reinstall the unit. If performed by unauthorized personnel, these operations may cause electric shocks or fires.

◆ Do not place containers with liquids or other objects on the unit.

◆ All the materials used for the manufacture and packaging of the air conditioner are recyclable.

◆ The packing material and exhaust batteries of the remote control (optional) must be disposed of in accordance with current laws.

◆ The air conditioner contains a refrigerant that has to be disposed of as special waste. At the end of its life cycle, the air conditioner must be disposed of in authorized centers or returned to the retailer so that it can be disposed of correctly and safely.

Installing the unit

IMPORTANT: When installing the unit, always remember to connect first the refrigerant tubes, then the electrical lines. Always disassemble the electric lines before the refrigerant tubes.

◆ Upon receipt, inspect the product to verify that it has not been damaged during transport. If the product appears damaged, DO NOT INSTALL it and immediately report the damage to the carrier or retailer (if the installer or the authorized technician has collected the material from the retailer.)

◆ After completing the installation, always carry out a functional test and provide the instructions on how to operate the air conditioner to the user.

◆ Do not use the air conditioner in environments with hazardous substances or close to equipment that release free flames to avoid the occurrence of fires, explosions or injuries.

Power supply line, fuse or circuit breaker

◆ Always make sure that the power supply is compliant with current safety standards. Always install the air conditioner in compliance with current local safety standards.

◆ Always verify that a suitable grounding connection is available.

◆ Verify that the voltage and frequency of the power supply comply with the specifications and that the installed power is sufficient to ensure the operation of any other domestic appliance connected to the same electric lines.

◆ Always verify that the cut-off and protection switches are suitably dimensioned.

◆ Verify that the air conditioner is connected to the power supply in accordance with the instructions provided in the wiring diagram included in the manual.

◆ Always verify that electric connections (cable entry, section of leads, protections…) are compliant with the electric specifications and with the instructions provided in the wiring scheme. Always verify that all connections comply with the standards applicable to the installation of air conditioners.

Contents

- Preparation for installation 4
- Deciding on where to install the indoor unit 5
- Indoor unit installation 7
- Purging the unit 8
- Connecting the refrigerant pipe 9
- Cutting/Flaring the pipes 10
- Performing leak test & insulation 11
- Drainpipe and drain hose installation 12
- Connecting the connection cord 14
- Assigning address to indoor unit 15
- Installing the safety net & air blocking kits 16
- Technical Specification & Product feature 16
- Troubleshooting 17
- Parts list (Option) 21

Preparation for installation

When deciding on the location of the air conditioner with the owner, the following restrictions must be taken into account.

General

Do NOT install the air conditioner in a location where it will come into contact with the following elements:

- Combustible gases
- Saline air
- Machine oil
- Sulphide gas
- Special environmental conditions

If you must install the unit in such conditions, first consult your dealer.

Avoid installing the air conditioner:

- In areas where it is exposed to direct sunlight. Close to heat sources.
- In damp areas or locations where it could come into contact with water. (for example rooms used for laundry)
- In areas where curtains and furniture could affect the supply and discharge of air.
- Without leaving the required minimum space around the unit. (as shown in the drawing)
- In scarcely ventilated areas.
- On surfaces that are unable to support the weight of the unit without deforming, breaking or causing vibrations during the use of the air conditioner.
- In a position that does not enable the condensate drainage pipe to be correctly installed. (at the end of the installation. It is always essential to check the efficiency of the drainage system)

Accessories

- The following accessories are supplied with the indoor unit.
  The type and quantity may differ depending on the specifications.

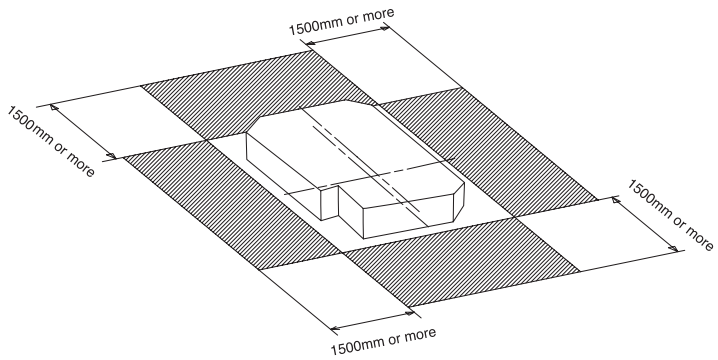
Pattern sheet	Insulation cover drain	Insulation	Insulation cover band	Insulation pipe	
Insulation drain hose	Cable-tie	Flexible hose	M4x12 tapped screw	Pad stopper	Installation manual
Safety net	M4x12 tapped screw				

Deciding on where to install the indoor unit

Indoor unit

- There must be no obstacles near the air inlet and outlet.
- Install the indoor unit on a ceiling that can support its weight.
- Maintain sufficient clearance around the indoor unit.
- Make sure that the water dripping from the drain hose runs away correctly and safely.
- The indoor unit must be installed in this way, that they are out of public access. (Not touchable by the users)

Space requirements for indoor unit

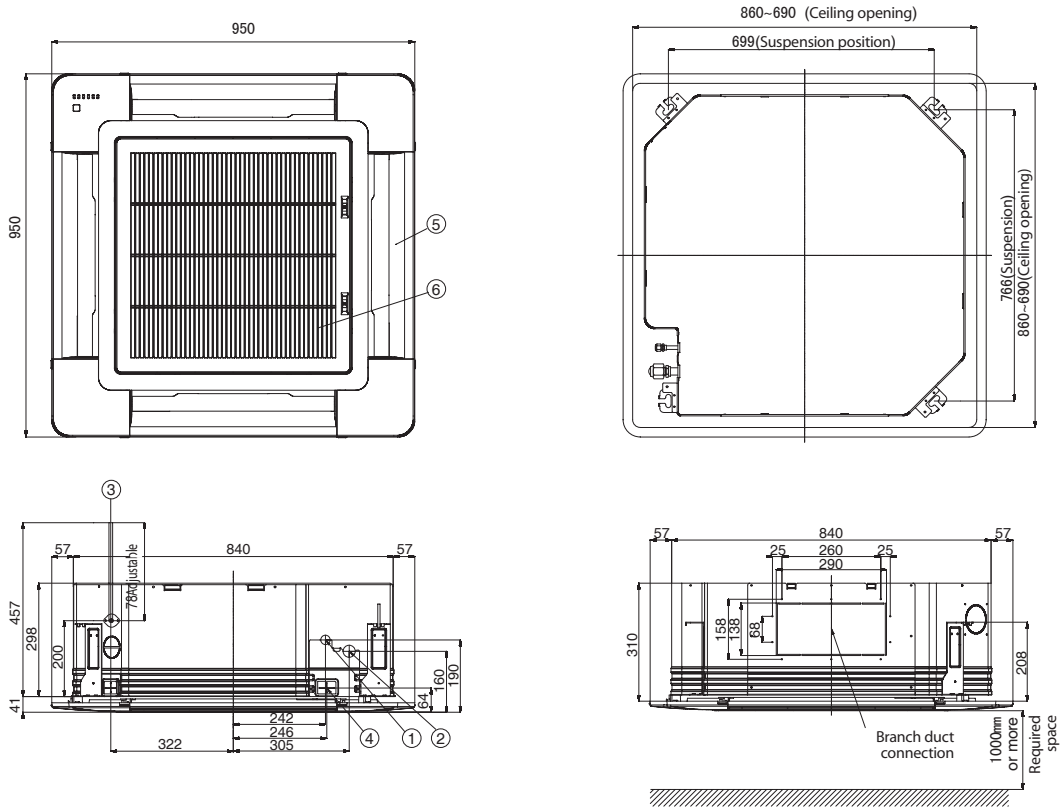


CAUTION

Our units must be installed in compliance with the spaces indicated in the installation manual to ensure either accessibility from both sides or ability to perform routine maintenance and repairs. The units' components must be accessible and that can be disassembled in conditions of complete safety either for people or things.

Drawing of the indoor unit

Unit : mm



No.	Name	Description
		✳✳140✳✳
1	Liquid pipe connection	ø9.52(3/8")
2	Gas pipe connection	ø19.05(3/4")
3	Drain pipe connection	OD 32, ID 26
4	Drain supply connection	-
5	Air discharge grille	-
6	Air suction grille	-

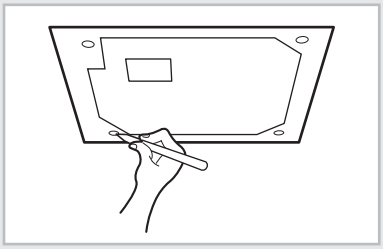
Dimension and weight			
Net dimension	Indoor unit	mm	840X298X840
	Panel size		950X950X35
	Outdoor unit		932 x 1128 x 375
Net weight	Indoor unit+Panel	kg	29+7
	Outdoor unit		105

Indoor unit installation

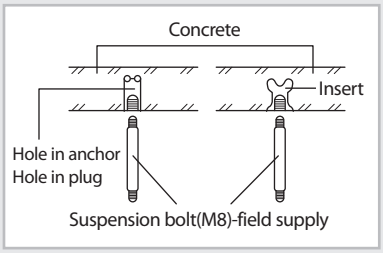
It is recommended to install the refnet joint before installing the indoor unit.

1 Place the pattern sheet on the ceiling at the spot where you want to install the indoor unit.

Note Since the diagram is made of paper, it may shrink or stretch slightly due to temperature or humidity. For this reason, before drilling the holes maintain the correct dimensions between the markings.



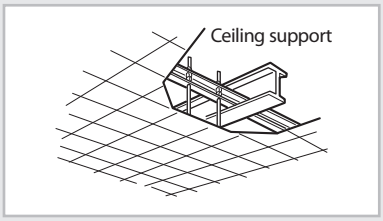
2 Insert bolt anchors, use existing ceiling supports or construct a suitable support as shown in figure.



3 Install the suspension bolts depending on the ceiling type.

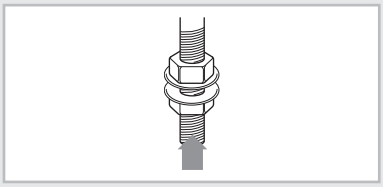
CAUTION

- **Ensure that the ceiling is strong enough to support the weight of the indoor unit. Before hanging the unit, test the strength of each attached suspension bolt.**
- **If the length of suspension bolt is more than 1.5m, it is required to prevent vibration.**



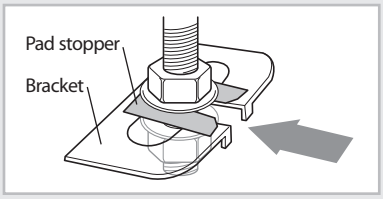
4 Screw eight nuts to the suspension bolts making space for hanging the indoor unit.

CAUTION **You must install all the suspension rods.**



5 Hang the indoor unit to the suspension bolts between two nuts.

Note Piping must be laid and connected inside the ceiling when suspending the unit. If the ceiling is already constructed, lay the piping into position for connection to the unit before placing the unit inside the ceiling.



6 Screw the nuts to suspend the unit. Cut a pad stopper and place it on the bracket at this time.

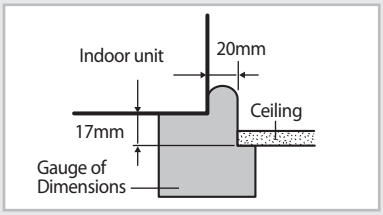
7 Adjust the unit to the appropriate position considering the installation area for the front panel.

7-1 Place the pattern sheet on the indoor unit.

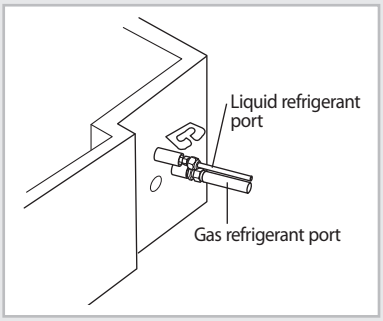
7-2 Adjust a space between the ceiling and the indoor unit by using the gauge of dimensions.

7-3 Fix the indoor unit securely after adjusting level of the unit by using a leveler.

7-4 Remove the pattern sheet, connect the other cables and install the front panel.



Purging the unit



From factory the unit is supplied and set with a pre-charge of nitrogen gas. (insert gas) Therefore, all insert gas must be purged before connecting the assembly piping.

Unscrew the pinch pipe at the end of each refrigerant pipe.

Result: All inert gas escapes from the indoor unit.

Note To prevent dirt or foreign objects from getting into the pipes during installation, do NOT remove the pinch pipe completely until you are ready to connect the piping.

Connecting the refrigerant pipe

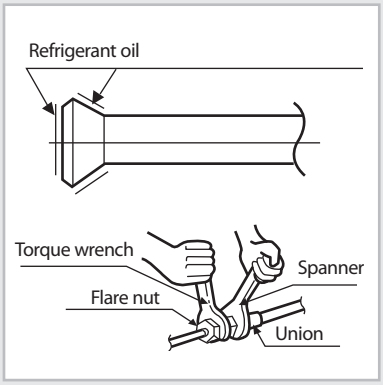
There are two refrigerant pipes of different diameters:

- ***A smaller one for the liquid refrigerant***
- ***A larger one for the gas refrigerant***
- ***The inside of copper pipe must be clean & has no dust.***

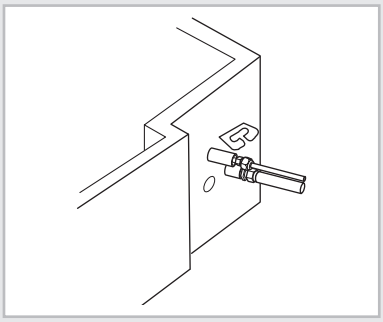
1 Remove the pinch pipe on the pipes and connect the assembly pipes to each pipe, tightening the nuts, first manually and then with a torque wrench, a spanner applying the following torque.

Outer Diameter	Torque (N•m)
6.35 mm (1/4")	18
9.52 mm (3/8")	42
12.70 mm (1/2")	55
15.88 mm (5/8")	65
19.05 mm (3/4")	100

Note If the pipes must be shortened refer to page 10.



2 Must use insulator which is thick enough to cover the refrigerant tube to protect the condensate water on the outside of pipe falling onto the floor and the efficiency of the unit will be better.



3 Cut off any excess foam insulation.

4 Be sure that there must be no crack or wave on the bended area.

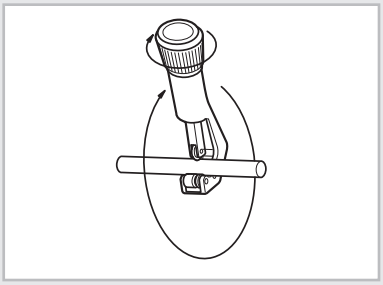
5 It would be necessary to double the insulation thickness(10mm or more) to prevent condensation even on the insulator when if the installed area is warm and humid.

6 Do not use joints or extensions for the pipes that connect the indoor and outdoor unit. The only permitted connections are those for which the units are designed.

CAUTION

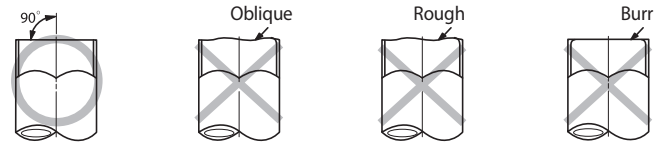
- ***Connect the indoor and outdoor units using pipes with flared connections(not supplied). For the lines, use insulated, unwelded, degreased and deoxidized copper pipe,(Cu DHP type to ISO 1337), suitable for operating pressures of at least 4200kPa and for a burst pressure of at least 20700kPa. Copper pipe for hydro-sanitary applications is completely unsuitable.***
- ***For sizing and limits (height difference, line length, max. bends, refrigerant charge, etc.) see the outdoor unit installation manual.***
- ***All refrigerant connection must be accessible, in order to permit either unit maintenance or removing it completely.***

Cutting/Flaring the pipes

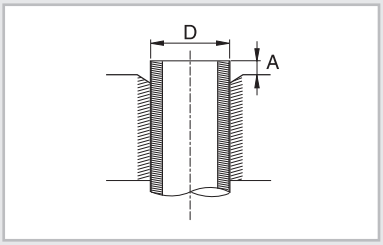


1 Make sure that you have the required tools available.
(pipe cutter, reamer, flaring tool and pipe holder)

2 If you wish to shorten the pipes, cut it with a pipe cutter, taking care to ensure that the cut edge remains at a 90° angle with the side of the pipe. Refer to the illustrations below for examples of edges cut correctly and incorrectly.



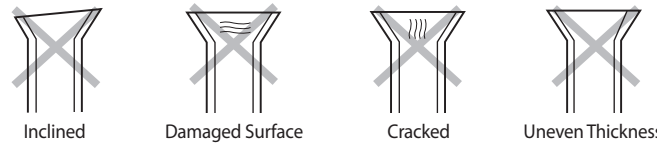
3 To prevent any gas from leaking out, remove all burrs at the cut edge of the pipe, using a reamer.

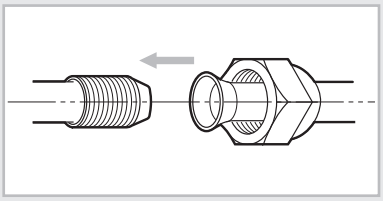


4 Slide a flare nut on to the pipe and modify the flare.

Outer diameter (D)	Depth (A)
6.35 mm (1/4″)	1.3mm
9.52 mm (3/8″)	1.8mm
12.70 mm (1/2″)	2.0mm
15.88 mm (5/8″)	2.2mm
19.05 mm (3/4″)	2.2mm

5 Check that the flaring is correct, referring to the illustrations below for examples of incorrect flaring.





6 Align the pipes and tighten the flare nuts first manually and then with a torque wrench, applying the following torque.

Valve	Flare nut		Valve cap		Pressure port cap		Valve needle		Pressure port	
	Wrench (mm)	N•m	Wrench (mm)	N•m	Wrench (mm)	N•m	Wrench (mm)	N•m	Wrench (mm)	N•m
1/4"	17	18	23	20	18	16~18	Allen (hex.) 5	9	-	0.34
3/8"	22	42	23	20	18	16~18	Allen (hex.) 5	9	-	0.34
1/2"	26	55	29	40	18	16~18	Allen (hex.) 5	13	-	0.34
5/8"	29	65	29	40	18	16~18	Allen (hex.) 5	13	-	0.34
3/4"	36	100	38	40	18	16~18	Allen (hex.) 5	13	-	0.34

CAUTION

In case of welding the pipe, you must weld with nitrogen gas blowing.

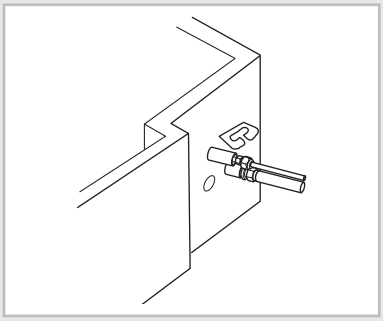
Performing leak test & insulation

Leak test

To identify potential gas leaks on the indoor unit, inspect the connection area of each refrigerant pipe using a leak detector for R22.

Before recreating the vacuum and recirculating the refrigerant gas, it is advisable to pressurize the whole system with nitrogen (using a cylinder with pressure reducer) at a pressure above 30 bar in order to immediately detect leaks on the refrigerant fittings.

Made vacuum for 15 minutes and pressurising system with nitrogen.



CAUTION

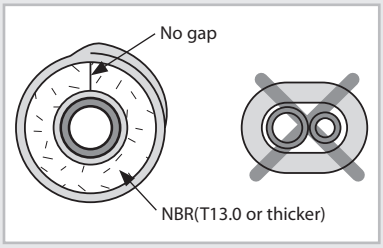
Discharge all the nitrogen to create a vacuum and charge the system.

Insulation

Once you have checked that there are no leaks in the system, you can insulate the piping and hose.

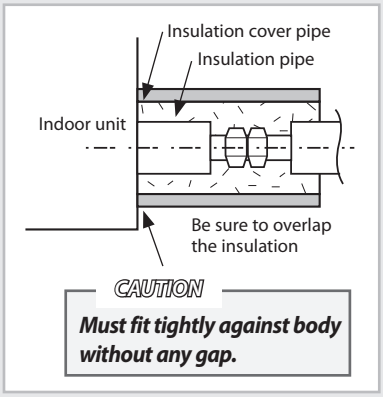
1 To avoid condensation problems, place **T13.0 or thicker Acrylonitrile Butadien Rubber** separately around each refrigerant pipe.

Note Always make the seam of pipes face upwards.



2 Wind insulating tape around the pipes and drain hose avoiding to compress the insulation too much.

3 Finish wrapping insulating tape around the rest of the pipes leading to the outdoor unit.

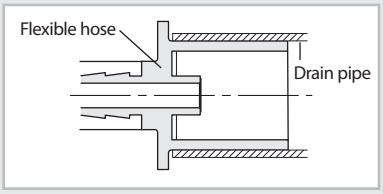


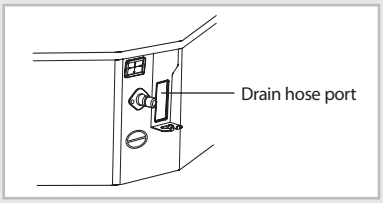
4 The pipes and electrical cables connecting the indoor unit with the outdoor unit must be fixed to the wall with suitable ducts.

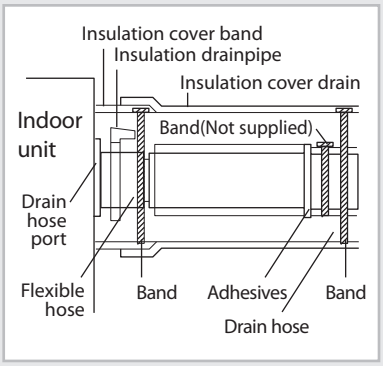
CAUTION

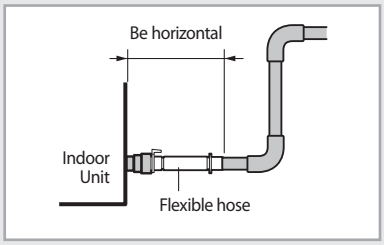
All refrigerant connection must be accessible, in order to permit either unit maintenance or removing it completely.

Drainpipe and drain hose installation

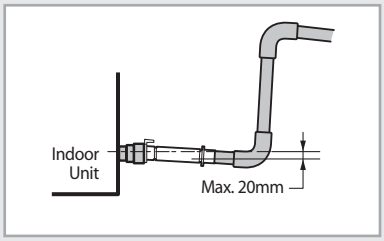




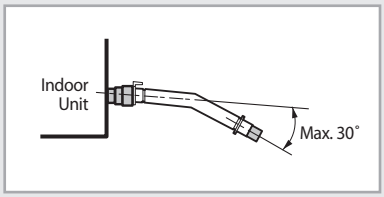




◆ Flexible hose Installation



◆ Max. allowable axis gap



◆ Max. allowable bending angle

Care must be taken when installing the drainpipe and drain hose for the indoor unit so that condensate water is drained correctly outside.

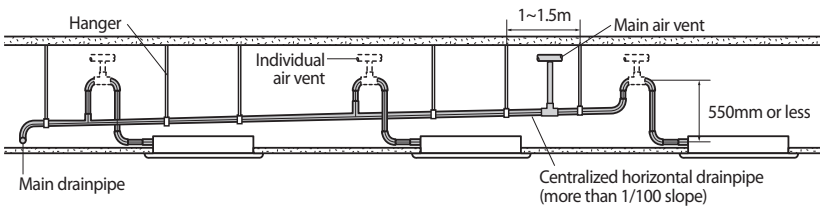
1 Fix the flexible hose to the drainpipe.
- ◆ The connection port of the flexible hose and PVC drainpipe must be fixed with PVC adhesives.
- ◆ Check out that the connected part doesn't leak.

2 Connect the flexible hose to the flexible hose port.
- ◆ Make sure that a rubber ring is installed on the drain hose port.

3 Install the drainpipe as shortly as possible.
- ◆ Give a slightly slant to the drainpipe for proper drainage of condensate water.
- ◆ There must be no gap on the connected part so that the drainpipe is not separated from the flexible hose .

4 Insulate the drainpipe, and then fix it as indicated.

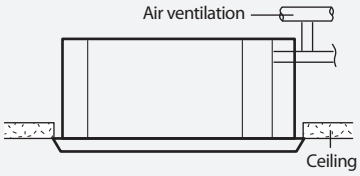
Note If a concentrated drain hose is installed, refer to the figure below.



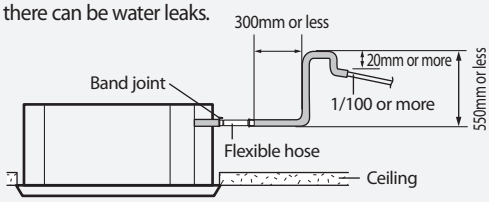
CAUTION

Check that the indoor unit is level with the ceiling by using the leveler.

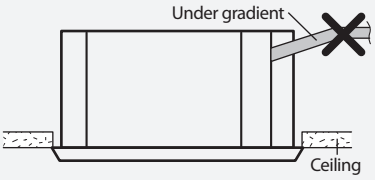
Install air ventilation to drain condensate water smoothly.



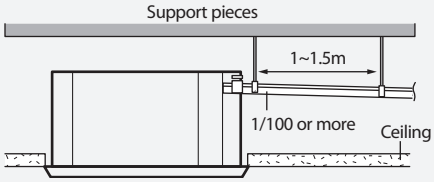
If it is necessary to increase the height of the drainpipe, install the drainpipe straightly within 300 mm from the flexible hose port. If it is raised higher than 550 mm, there can be water leaks.



Do not give the hose and upward gradient after the connection port. This will cause water to flow backwards when the unit is stopped, resulting in water leaks.



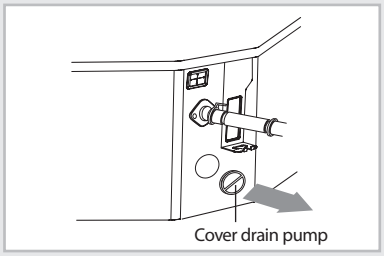
Do not apply force to the piping on the unit side when connecting the drain hose. The hose should not be allowed to hang loose from its connection to the unit. Fasten the hose to a wall, frame or other support as close to the unit as possible.



Testing the drainage

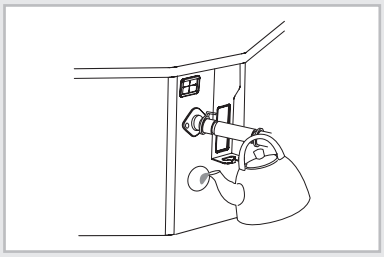
You should test the drainage after completing the installation. Prepare a little water about 2.0 liters.

1 Turn the cover drain pump, then pull it out.



2 Pour water into the indoor unit as shown in figure.

Note If you do not pour water inside the water supply intake, water may spill from the indoor unit.



3 Confirm that the water flows out through the drain hose.

Note You can check the drainage only when the air conditioner is in cool mode.

4 Reassemble the cover drain pump.

Connecting the connection cord

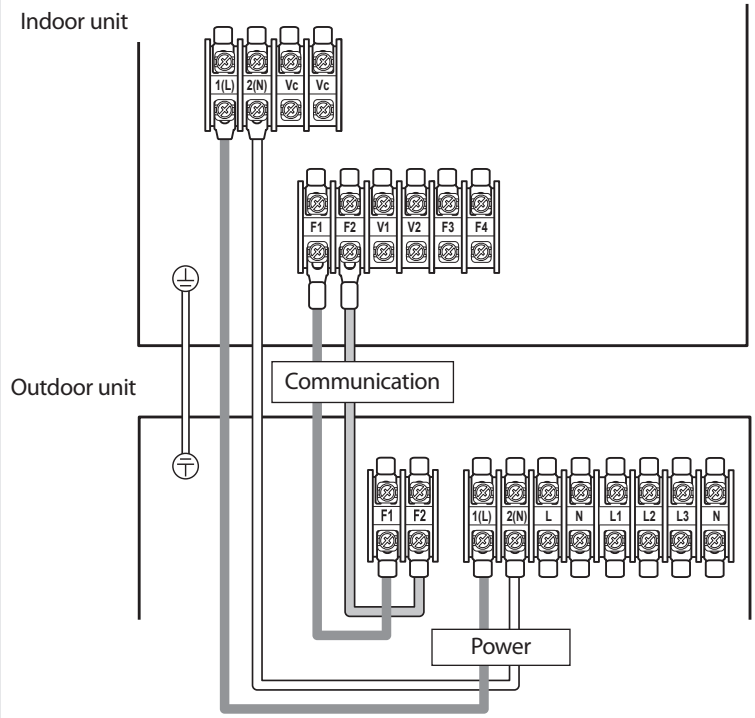
CAUTION

- ***Always remember to connect the refrigerant pipes before performing the electric connections. When disconnecting the system, always disconnect the electric cables before disconnecting the refrigerant pipes.***
- ***Always remember to connect the air conditioner to the grounding system before performing the electric connections.***

The indoor unit is powered by the outdoor unit by means of a H07 RN-F connection cable (or a more power model), with insulation in synthetic rubber and jacket in polychloroprene(neoprene), in accordance with the requirements of standard EN 60335-2-40.

1. Remove the screw on the electrical component box and remove the cover plate.
2. Route the connection cord through the side of the indoor unit and connect the cable to terminals; refer to the figure below.
3. Route the other end of the cable to the outdoor unit through the ceiling & the hole on the wall.
4. Reassemble the electrical component box cover, carefully tightening the screw.

Wiring diagram



■ Size of the cables used to interconnect the indoor and outdoor units.

Indoor-Outdoor units	Power(±10%)	Power cable	Max. Length
Power supply	220-240V~,50Hz	1.25mm^2, 2wires	1Km
Communication	-	0.75~1.0mm^2, 2 wires	1Km

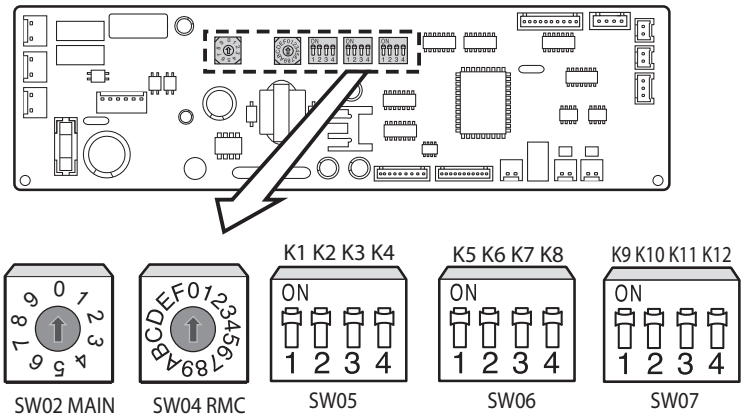
✻ ***For connection cord, use the grade H07RN-F or H05RN-F materials.***

✻ ***Screws on terminal block must not be unscrewed with the torque less than 12 kgf•cm.***

Assigning address to indoor unit

1 Before installing the indoor unit, assign an address to the indoor unit according to the air conditioning system plan.

2 The address of the indoor unit is assigned by adjusting MAIN(SW02) and RMC(SW04) rotary switches.



3 The MAIN address is for communication between the indoor unit and the outdoor unit. Therefore, you must set it to operate the air conditioner properly.

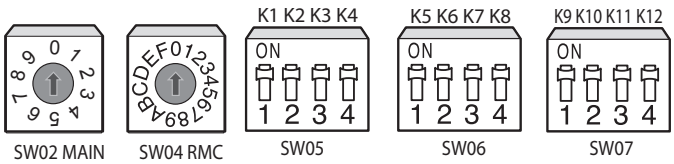
4 It is required to set the RMC address if you install the centralized control and/or the centralized control.

5 If you install optional accessories such as the wired remote control, centralized control, etc. see an appropriate installation manual.

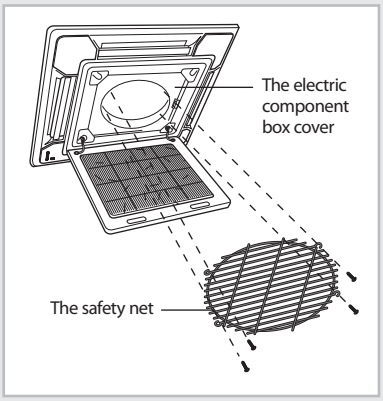
6 If an optional accessory is not installed, you do not have to set the RMC address. However, adjust K1 and K2 switches of the SW05 DIP switch to "ON" position in this case.

7 Set the MAIN address by adjusting the rotary switch(SW02) from 0 to 9. Each indoor unit connected to the same outdoor unit must have different address.

i. e. If an indoor unit does not have an optional accessory and its MAIN address is "0"



Installing the safety net & air blocking kits



Safety net

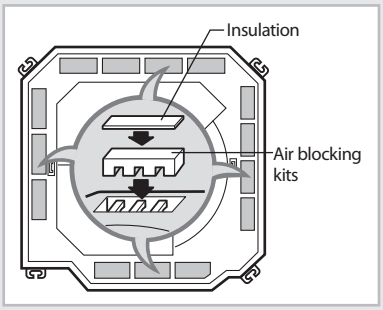
Install the safety net after installing the connection cord and fixing electric component box cover. For your safety, you must install the safety net.
For details about installing the panel, refer to the manual for the panel.

1 Uncover the wrap of safety net.

2 Fix the safety net to the electric component cover box with four screws as indicated.

CAUTION

The maintenance of this unit is normally done by qualified personnel, as following a "Commercial product". So, if manufacturer puts the recommendation to do by qualified personnel, manufacturer can avoid supplying safety net and screws to fix it. (cost reduction)
Put safety net as optional kit.



Air blocking kits

1 When installing the unit depending on the situation, you can fill up the air outlet(s) with one or more air blocking kits (not supplied). Then install the insulation to block air completely.

Technical Specification & Product feature

Model	CH140EZM1C
Capacity (Cooling and Heating)	13.0/14.0kW
Power input	0.08kW
Running current	0.20A
Refrigerant	3750g
Fuse	30A

※ Maximum installation height : up to 3.6m
※ Condensate discharge pump(built-in) : Max. 750mm
※ Length of pipes and difference in height : see the outdoor unit installation manual
※ Vacuum and refrigerant charge : see the outdoor unit installation manual

Detection of errors

- If an error occurs during the operation, one or more LED flickers and the operation is stopped except the LED.
- If you re-operate the air conditioner, it operates normally at first, then detect an error again.

LED Display on the receiver & display unit

LED Display

Abnormal conditions	LED lamp display					Remarks
	Operation	Defrost	Timer	Air flow	Filter	
Power reset	◑	X	X	X	X	
Error of temperature sensor in the indoor unitt (Open/Short)	X	X	◑	X	X	
Error of heat exchanger sensor in the indoor unit	◑	X	◑	X	X	
Error of the outdoor temperature sensor Error of the condensor temperature sensor Error of the discharge temperature sensor	◑	X	X	◑	X	
1. No communication for 2 minutes between indoor units (Communication error for more than 2 minutes) 2. Indoor unit receiving the communication error from outdoor unit 3. Outdoor unit tracking 3 minutes error 4. When sending the communication error from the outdoor unit, the mismatching of the communication numbers and installed numbers after completion of tracking (Communication error for more than 2 minutes)	X	X	◑	◑	X	1. Indoor unit error (Display is unrelated with operation) 2. Outdoor unit error (Display is unrelated with operation)

● On ◑ Flickering X Off

- If you turn off the air conditioner when the LED is flickering, the LED is also turned off.

LED Display

Abnormal conditions	LED lamp display					Remarks
	Operation	Defrost	Timer	Air flow	Filter	
1. EVA sensor secession 2. Cond-mid sensor secession 3. Refrigerant leak 4. Cond high temperature 6th detection 5. Discharge 6th detection 6. Comp down 7. 6th detection of high temperature cond 8. 6th detection of high temperature discharge 9. Compressor down due to 6th detection of freezing	X	X	◑	◑	◑	
Detection of the float switch	X	X	X	◑	◑	
Error of setting option switches for optional accessories	X	X	◑	X	◑	
EEPROM error	◑	X	◑	◑	X	
EEPROM option error	◑	◑	◑	◑	◑	

● On ◑ Flickering X Off

◆ If you turn off the air conditioner when the LED is flickering, the LED is also turned off.

Wired remote control

◆ If an error occurs, TEST is displayed on the wired remote control.
If you would like to see an error code, press the Test button.

Display	Explanation	Remark
101	Indoor unit Communication Error	Communication Error
102	Indoor/Outdoor unit Communication Time Out Error 60 Packet Over data	
201	Indoor unit is not connected	
203	Communication Error between Outdoor Main and Inverter Micom (Occurred after 1 minute detection in Main and Inverter)	
121	Indoor Temp. Sensor (Open/Short Error)	Indoor Sensor Error
122	Indoor Unit Eva in Sensor (Open/Short Error)	
128	Indoor Unit Eva in Sensor Separation	
221	Outdoor Temp. Sensor Error (Open/Short Error)	Outdoor Sensor Error
237	COND Temp. Sensor Error (Open/Short Error)	
251	Inverter Compressor Discharge Temp. sensor Error (Open/Short Error)	
425	Power cable miss connection error	
153	Indoor Float S/W 2nd Detection	Self Diagnosys Error
460	Outdoor unit - indoor unit communication wire miss connection (Connected to Power terminal)	
554	Outdoor unit refrigerant Full leakage (Gas leak)	
458	Outdoor Fan 1 Error	
475	Outdoor Fan 2 Error	
416	Discharge over temperature	Outdoor Unit Protection Control Error
461	[Inverter] Compressor starting error	
462	Primary Current Over Trip error	
464	[Inverter] DC PEAK error(O.C)	
467	[Inverter] Compressor Rotation error	
468	[Inverter] Current Sensor error	
469	[Inverter] DC LINK Sensor error	
471	[Inverter] EEPROM Read/Write Error	
474	[Inverter] Heatsink temperature over Error	
556	Outdoor unit Capacity Setup option error	
601	Communication error between Indoor unit and wired remote control	Wired Remote Control Error
602	Communication error between Master and Slave wired remote control	
606	COM1/COM2 Cross-installed error	
EA	Error of setting option for wired remote control COM2	

Indoor unit

Display	Explanation
E101	Indoor unit communication reception error
E102	Communication error between the outdoor and indoor unit
E121	Indoor unit temperature sensor (Short/Open)
E122	Indoor unit Eva In sensor (Short/Open)
E123	Indoor unit Eva Out sensor (Short/Open)
E128	Indoor unit Eva In sensor secession
E129	Indoor unit Eva Out sensor secession
E130	Indoor Eva In and Out sensor secession error
E131	Secondary(Electronic)heater sensor 1 error
E132	Secondary(Electronic)heater sensor 2 error
E133	Secondary(Electronic)heater sensor 3 error
E153	Indoor Float S/W 2nd Detection
E154	Indoor fan error
E161	Mixed operation error
E162	EEPROM error
E163	EEPROM option setting error
E164	Error regarding special sales taxes
E165	Electronic heater discharge temperature protection error
E166	Electronic heater windless error
E201	Indoor unit number setting error(The outdoor unit informs the error)

Parts list(Option)

Wired remote control accessories

Wired remote control	Cable-tie	Cable clamp	M4x16 tapped screw	Indoor unit power drawing cable
1	2	5	7	1

Communication cable of the wired remote control	Wire joint	User's manual	Installation manual
1	1	1	1

Wireless remote control accessories

Wireless remote control	Battery	Remote control holder	STS 2S-2x10 tapped screw	User's manual	Installation manual
1	2	1	2	1	1

Parts list (Option)(Continued)

Centralized control accessories

Centralized control	Cable-tie	Cable clamp	M4x16 tapped screw	User's manual	Installation manual
1	2	5	7	1	1

Function control accessories

Function control	Cable-tie	Cable clamp	M4x16 tapped screw	User's manual	Installation manual
1	2	6	7	1	1

Transmitter accessories

Transmitter	Transmitter power cable	Transmitter communication cable	Installation manual
1	1	1	1

Note If you would like to install the centralized control, you must install the transmitter in the outdoor unit.

7-day scheduler accessories

7-day scheduler	Cable-tie	Cable clamp	M4x16 tapped screw	User's manual	Installation manual
1	2	2	4	1	1

Memo

SAMSUNG

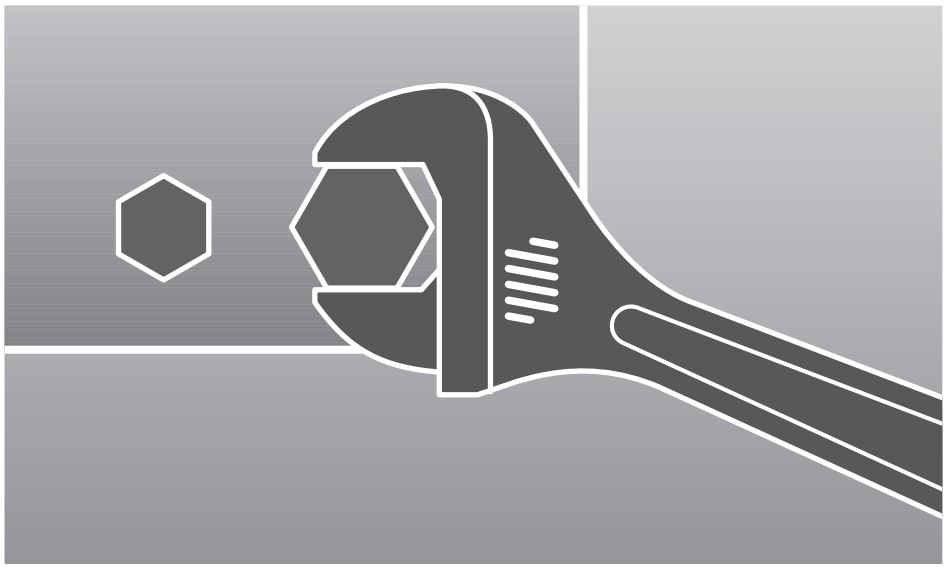
ELECTRONICS

INSTALLATION MANUAL

CH140EZM1C

System Air Conditioner

(Cooling and Heating)



ⒺⓇ DB98-30844A(1)